Energy Efficiency Checklist

Wine

Cost-saving measures, productivity enhancements, and optimisation opportunities

The Energy Efficiency Checklist is a practical guide for winemakers and growers is to help the industry establish energy efficient opportunities. It has been developed as part of the Sector Decarbonisation Programme, which is a joint initiative between the Energy Efficiency & Conservation Authority (EECA), and New Zealand Winegrowers.

This checklist sets out both low and high-cost energy efficient opportunities which can be taken when embarking on a process towards lowering your onsite emissions.

There are four different checklists focusing on:

1. Measuring Energy Usage
2. Staff Engagement
3. Energy Maintenance
4. Optimisation of Equipment

Before you start this guide, you can set the foundations and start with purpose by:

1. Putting in place a climate action plan with regular feedback from stakeholders and staff around how to improve your performance
2. Assign energy management responsibilities to staff
3. Maintain an updated action list of energy efficient opportunities
4. Meet regularly and report on actions – provide the opportunity for staff feedback

TASK	DETAIL	COMPLETE?
Measure Energy Usage	Monitor energy consumption (electricity, diesel, petrol) as well as water usage regularly to identify any unexpected increases.	☐
	Use the EECA Energy Intensity Calculator to measure and keep track of emissions.	☐
	Compare monthly energy consumption data to the same month a year prior and on a rolling 12-month basis to identify trends (i.e., increasing/decreasing energy consumption).	☐
Staff Engagement	Educate staff about the importance of being as energy efficient as possible, managing hot water use and turning off equipment when not in use. • Host an online or face to face session to update staff about why it's important to save energy. You can also integrate information about your energy programme into your organisation's orientation training • Create a mechanism for contractors and staff to share their suggestions with you. Make sure you respond to comments and act on recommendations when feasible. You may even offer a reward for the best energy-saving ideas	☐
Basic Energy Maintenance	Implement appropriate scheduling to regularly perform basic energy maintenance by a qualified technician.	☐
	Check insulation is in good condition on pipes and equipment.	☐
	Review and inspect the condition of seals on cooler doors.	☐
	Check for leaking utilities (hot water/refrigerant/air).	☐
	Check lights are clean and free from dust.	☐
OPTIMISING EQUIPMENT		
Refrigeration & Tank Storage	Adjust refrigerant temperature settings to highest possible set point for specific production run.	☐
	Adjust the production schedule to flatten the cooling load & minimise the overlap between intensive cooling processes.	☐
	Consider if sequencing of multiple compressors can be optimised to their design (i.e., can 2 screw compressors run in parallel or 1 screw compressor for the base load and reciprocating compressor meets variable load).	☐
	Review options of using night-time cool air for ventilation.	☐
	Over cool product at night when ambient temperatures are low .	☐
	Schedule production to optimise for the seasonal ambient temperatures.	☐
	Review opportunity for night picking to bring grapes in colder.	☐
	Check the secondary refrigerant regularly for contamination to ensure cooling capacity is correct (i.e., glycol density).	☐
Pumping	Review pump load management & ensure the most efficient pumps are scheduled to give the load.	☐
Compressed Air	Review minimum required air pressure set point for production & reduce compressor set points.	☐
	Ensure intercoolers are clean & maintained.	☐

TASK	DETAIL	COMPLETE?
	Review inlet air intake & ensure air is drawn from the coolest possible location.	☐
	If multiple compressors are present, review compressor schedule to optimise for load profile.	☐
Hot Water	Adjust hot water temperature settings to lowest possible set point for production.	☐
	Put a proactive leak management and refrigerant containment strategies in place.	☐
	Ensure water treatment is well maintained to reduce scaling.	☐
HVAC	Adjust air conditioning temperature set point band to largest range by implementing a dead-band between which neither heating or cooling occurs (this is usually achievable using AUTO function). For instance, set a room to heat to 20 degrees and cool to 23 degrees.	☐
	Use the economy cycle to draw in cooler outside air.	☐
	Ensure heat pump ducting systems are cleaned annually for good airflow through the registers.	☐
	Clean air filters, fans, and coils in your heating, ventilation, and air conditioning (HVAC) system – replace if need be.	☐
Lighting	Only have lights on when required & turn off when not in use (consider installing sensors).	☐
	Use a light meter to review minimum level of lighting.	☐

NOTES